

WHAT IS CLAIMED IS:

1. An apparatus for providing high quality power to a load by using overlap transfer comprising:
 - an enclosure for outdoor use;
 - a flywheel within the enclosure for storing and discharging energy as a DC voltage; and
 - a switch operatively connected to the flywheel and fed from a utility source and a generator source, wherein the switch operates in three modes, a normal mode in which the utility source provides power to the load, an interim mode in which the flywheel supplies power to the load and a backup mode in which the generator source provides power to the load,
wherein upon a drop in power output below a set point, the switch sends a startup signal to the generator source and enters the interim mode where the flywheel discharges energy stored therein to supply the DC voltage to the load until the generator source can supply power to the load, upon the generator source being able to supply power, the switch enters the backup mode and the generator source feeds power to the flywheel for recharging the flywheel.
2. An apparatus as recited in Claim 1, further comprising a rectifier operatively connected to the DC voltage output by the flywheel for reducing DC ripple in the DC voltage.
3. An apparatus as recited in Claim 1, further comprising a distribution panel within the enclosure and fed by the generator source for fusing the apparatus.
4. An apparatus as recited in Claim 1, wherein the set point is determined by comparing a DC output to a rectifier voltage.
5. An apparatus as recited in Claim 1, wherein in the interim mode the utility source supplies power to the load in combination with the flywheel.

6. An apparatus as recited in Claim 1, wherein the generator source is selected from the group consisting of a fuel cell, turbine unit and generator.

7. An apparatus as recited in Claim 1, wherein the generator source is within the enclosure.

8. An apparatus as recited in Claim 7, further comprising a water cooling system within the enclosure for removing heat from the enclosure.

9. An apparatus as recited in Claim 1, the flywheel supplies power to the load when the switch transitions from the backup mode to the normal mode.

10. An apparatus as recited in Claim 1, further comprising a natural gas fuel for supply to the generator source wherein byproduct heat generated by consumption of the natural gas fuel is utilized to power absorption chillers that, in turn, cool an area.

11. An apparatus as recited in Claim 1, further comprising a rectifier connected to the utility source for converting an AC voltage to a DC voltage.

12. An apparatus as recited in Claim 11, wherein the AC voltage is 480 VAC and the DC voltage is 600VDC.

13. An apparatus as recited in Claim 12, further comprising a converter for scaling down the 600VDC to 48VDC at the load.

14. An apparatus as recited in Claim 13, wherein the load is a computer without a switching mode power supply.

15. A system for receiving utility AC power as an input and reliably providing DC power for solid state technology, the system comprising:

a) at least two power modules for providing reliable power, each power module including:

a selectively activated backup power source;
first means for receiving a utility power source and determining when the utility power source and the backup power source are sufficient;
a flywheel system for providing interim power when the utility power source is not sufficient; and
a switching mechanism for transitioning to using the flywheel system when the utility power source is determined not sufficient, activating the backup power source, and transitioning to using the backup power source after the backup power source is determined sufficient; and

b) a power conversion module including:
an enclosure; and
a plurality of chassis mounted within the enclosure, each chassis having a first I/O board for receiving an alternate power source and an AC output of one of the power modules, a diode bridge on the first I/O board for outputting a consistent voltage as long as at least one of the alternate power source and the power module is sufficient, and a converter for receiving an output of the diode bridge and outputting a desired DC voltage to a load within the enclosure.

16. A system as recited in Claim 15, wherein a sum of a power of the desired DC voltage of the plurality of chassis is double that required by the load for providing redundancy.

17. A system as recited in Claim 15, wherein the alternate power source is a plurality of power modules.

18. A system for efficiently delivering power to a plurality of solid state technology devices, the system comprising:

at least one rectifier for receiving AC voltage and converting the AC voltage to a high DC voltage;

cables operatively connected to the at least one rectifier for routing the high DC voltage to a load; and

at least one converter operatively connected between the cables and load for scaling the high DC voltage to a voltage as required to power the load.

19. A system as recited in Claim 18, further comprising a second rectifier for receiving AC voltage and converting the AC voltage to a second high DC voltage and a diode bridge for receiving the high DC voltage and the second high DC voltage in order to provide redundancy in the system.